

# Class 04

## Time-Varying Statistics

- Definition
- Example

## Little's Formula

# Tally vs Time-Varying Statistics

## Tally

- Data are discrete observations
  - $X_1, \dots, X_n$
- Mean:
  - (from Adobe??)

# Time-Varying

- Data are sample paths (state trajectories)
- To collect time-varying means “on the fly,” to maintain a set of counters  
(Insert Eg’s?) – although they are in full in the notes?

# Little's Formula

- Average number in “system”  
= average arrival rate \* average time in system
  - exactly, when “system” is empty
  - approximately, as time progresses towards infinity